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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/529,244

10/21/2005

Kaoru Higuchi

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6116

21874

7590

04/09/2008

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EXAMINER

TRAN, HUAN HUU

ART UNIT

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/529,244	<b>Applicant(s)</b> HIGUCHI ET AL.	
	<b>Examiner</b> Huan H. Tran	<b>Art Unit</b> 2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 2-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11-30 and 33-36 is/are allowed.
- 6) ☒ Claim(s) 2-10, 31, 32 and 37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>02/29/08</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 02/29/08 has been entered.

### ***Priority***

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 3 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language

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is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 3 recites the broad recitation “wherein a diameter of the fluid-ejecting hole of the nozzle is equal to or less than  $\Phi 8 \mu\text{m}$ ” and the claim also recites “wherein the diameter of the fluid-ejecting hole of the nozzle is not less than  $\Phi 0.2 \mu\text{m}$  and not more than  $\Phi 4 \mu\text{m}$ ” which is the narrower statement of the range/limitation.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 2, 3, 6, 7, 8, 31, 32, 37 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Murata (US 2005/0116069).

As to claim 2, Murata discloses an ultrafine electrostatic attraction fluid jet device which ejects a fluid, which is electrified by a voltage application, by an electrostatic attraction in the form of a droplet from a fluid-ejecting hole of a nozzle made of an insulating material (see paragraph [0075], wherein a diameter of the fluid-ejecting hole of the nozzle is equal to or less than  $\Phi 8 \mu\text{m}$  , comprising:

an applied voltage control means which controls a voltage applied to the fluid so as to

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adjust the amount of the droplet ejected from the fluid-ejecting hole (see paragraph [0192]),

the applied voltage control means controlling the voltage applied to the fluid so that the amount of the droplet, which has just been ejected from the fluid-ejecting hole, of the fluid is equal to or less than 1 pl.

As to claim 3, with reference to paragraph [0118] for example, Murata discloses an electrostatic attraction fluid jet device which ejects a fluid, which is electrified by a voltage application, by an electrostatic attraction in the form of a droplet from a fluid-ejecting hole of a nozzle made of an insulating material, wherein a diameter of the fluid-ejecting hole of the nozzle is equal to or less than  $\Phi 8 \mu\text{m}$ , wherein the diameter of the fluid-ejecting hole of the nozzle is not less than  $\Phi 0.2 \mu\text{m}$  and not more than  $\Phi 4 \mu\text{m}$ .

As to claims 6, 7 and 8, Murata discloses an electrostatic attraction fluid jet device which ejects a fluid, which is electrified by a voltage application, by an electrostatic attraction in the form of a droplet from a fluid-ejecting hole of a nozzle made of an insulating material, wherein a diameter of the fluid-ejecting hole of the nozzle is equal to or less than a diameter of the droplet, which has just been ejected, of the fluid. See [0118].

Murata further discloses an applied voltage control means which controls a voltage applied to the fluid so as to adjust the amount of the droplet ejected from the fluid-ejecting hole (see paragraph [0192]),

the applied voltage control means controlling the voltage applied to the fluid so that the amount of the droplet, which has just been ejected from the fluid-ejecting hole, of the fluid is equal to or less than 1 pl.

As to claim 8, Murata discloses that the diameter of the fluid-ejecting hole of the nozzle is not less than  $\Phi$  0.2  $\mu\text{m}$  and not more than  $\Phi$  4  $\mu\text{m}$ .

As to claim 31 Murata discloses an electrostatic attraction fluid jet device which ejects a fluid, which is electrified by a voltage application, by an electrostatic attraction in the form of a droplet from a fluid-ejecting hole of a nozzle made of an insulating material, in the electrostatic attraction fluid jet device, a diameter of the fluid-ejecting hole of the nozzle being equal to or less than a diameter of the droplet, which has just been ejected, of the fluid, the electrostatic attraction fluid jet device comprising:

an electrode (Fig. 9, electrode 2) for applying a voltage to the fluid; and a process control section for controlling a voltage applied to the electrode so as to adjust the amount of a droplet ejected from the fluid-ejecting hole,

the process control section controlling a voltage (Fig. 9, elements 10 and 11) applied to the electrode so that the amount of a droplet, which has just been ejected from the fluid-ejecting hole, of the fluid is less than 1 pl.

As to claim 32 Murata discloses an electrostatic attraction fluid jet device which ejects a fluid, which is electrified by a voltage application, by an electrostatic attraction in the form of a droplet from a fluid-ejecting hole of a nozzle made of an insulating material, in the electrostatic attraction fluid jet device, a diameter of the fluid-ejecting hole of the nozzle being equal to or less than  $\Phi$  8  $\mu\text{m}$ , the electrostatic attraction fluid jet device comprising:

an electrode (Fig. 9, electrode 2) for applying a voltage to the fluid; and

a process control section (Fig. 9, elements 10 and 11) for controlling a voltage applied to

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the electrode so as to adjust the amount of a droplet ejected from the fluid-ejecting hole,

the process control section controlling a voltage applied to the electrode so that the amount of a droplet, which has just been ejected from the fluid-ejecting hole, of the fluid is less than 1 pl.

As to claim 37 Murata discloses an electrostatic attraction ink jet device which ejects ink, which is electrified by a voltage application, by an electrostatic attraction in the form of a droplet from an ink-ejecting hole of a nozzle made of an insulating material, wherein

a diameter of the ink-ejecting hole of the nozzle is equal to or less than a diameter of the droplet of the ink which has just been ejected.

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claimw 4, 5, 9, 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murata.

As to claims 4, 5, 9, 10, Murata discloses the claimed invention except for the relationship between the range of the dot diameter and that of the nozzle diameter. It would have been obvious to one having ordinary skill in the art at the time the invention was made to optimize the above-identified relationship, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

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***Allowable Subject Matter***

9. Claims 11-14, 15-18, 19-21, 22-24, 25-27, 28-30, 33, 34, 35, 36 are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huan H. Tran whose telephone number is (571) 272-2261. The examiner can normally be reached on at work on T-F from 6:30am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Luu can be reached on (571) 272-7663. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Huan H. Tran/  
Primary Examiner, Art Unit 2861

/H. H. T./  
Primary Examiner, Art Unit 2861